CLAIMS

1. A method for manufacturing an aluminum heat exchanger, the method comprising the steps of:

obtaining a heat exchanger tube by forming a Zn thermally sprayed layer on a surface of an aluminum flat tube core so as to adjust Zn adhesion amount to 1 to 10 g/m^2;

obtaining a heat exchanger core by alternatively arranging the heat exchanger tube and an aluminum fin and brazing the heat exchanger tube and the fin with end portions of the heat exchanger tube connected to aluminum headers in fluid communication; and

forming a chemical conversion treatment coat (corrosion resistance coat) on a surface of the heat exchanger core by subjecting the surface of the heat exchanger core to chemical conversion treatment using at least one chemical conversion treatment agent selected from the group consisting of phosphoric acid chromate, chromic acid chromate, phosphoric acid zirconium series, phosphoric acid titanium series, fluoridation zirconium series, and fluoridation titanium series.

2. The method for manufacturing an aluminum heat exchanger as recited in claim 1, wherein chemical etching treatment is performed prior to the chemical conversion treatment to the heat exchanger core.

3. The method for manufacturing an aluminum heat exchanger

as recited in claim 2, wherein acid cleaning treatment using acidic solution is performed as the chemical etching treatment.

4. The method for manufacturing an aluminum heat exchanger as recited in any one of claims 1 to 3, wherein a Zn adhesion amount of the sprayed layer is adjusted to 2 to 6 g/m^2.

5. The method for manufacturing an aluminum heat exchanger as recited in any one of claims 1 to 4, wherein the chemical conversion treatment is performed by using fluoridation zirconium series chemical conversion treatment agent.

6. The method for manufacturing an aluminum heat exchanger as recited in claim 5, wherein a Zr adhesion amount in the chemical conversion treatment is adjusted to 30 to 200 mg/m^2.

7. The method for manufacturing an aluminum heat exchanger as recited in any one of claims 1 to 6, wherein the tube core contains Cu: 0.2 to 0.6 mass% and Mn: 0.1 to 2 mass%.

8. The method for manufacturing an aluminum heat exchanger as recited in any one of claims 1 to 7, wherein the fin is provided with an aluminum fin core, and wherein the fin core contains Zn: 0.8 to 3 mass%.

9. The method for manufacturing an aluminum heat exchanger

as recited in any one of claims 1 to 8, wherein an area rate of a region of a surface of the heat exchanger tube covered with Zn is adjusted to 10 to 90% or more.

10. An aluminum heat exchanger manufactured by the method as recited in any one of claims 1 to 9.

11. An aluminum heat exchanger provided with a heat exchanger core in which a heat exchanger tube and an aluminum fin are alternatively arranged and brazed each other with end portions of the heat exchanger tube connected to aluminum headers in fluid communication, wherein the heat exchanger tube has a tube core on which a Zn thermally sprayed layer is formed, the Zn adhesion amount being 1 to 10 g/m^2,

wherein a chemical conversion treatment coat (corrosion resistance coat) is formed on a surface of the heat exchanger core, wherein the chemical conversion treatment coat is made of at least one element selected from the group consisting of phosphoric acid chromate, chromic acid chromate, phosphoric acid zirconium series, phosphoric acid titanium series, fluoridation zirconium series, and fluoridation titanium series.

12. A refrigeration cycle in which refrigerant compressed by a compressor is condensed by a condenser, the condensed refrigerant is decompressed by a decompression device, the decompressed

refrigerant is evaporated by an evaporator and then returned to the compressor,

wherein the condenser is constituted by the aluminum heat exchanger as recited in claim 10 or 11.